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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/669,648

09/25/2003

Prasad Golla

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

WONG, XAVIER S

ART UNIT

PAPER NUMBER

2416

MAIL DATE

DELIVERY MODE

09/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/669,648	Applicant(s) GOLLA ET AL.	
	Examiner Xavier Wong	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11th May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims **1-15** are pending

This is a Non-Final action

Allowable Subject Matter

Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

Delete occurrences of phrase “wherein” in pending claims as the phrase is considered as optional language. Claim scope is not limited by claim language that suggests or makes optional but does not require steps to be performed, or by claim language that does not limit a claim to a particular structure. However, examples of claim language, although *not* exhaustive, that may raise a question as to the limiting effect of the language in a claim are:

- (A) “ adapted to ” or “adapted for ” clauses;
- (B) “ wherein ” clauses; and
- (C) “ whereby ” clauses.

The determination of whether each of these clauses is a limitation in a claim depends on the specific facts of the case. In *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005), the court held that when a “whereby” clause states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention.” *Id.* However, the court noted (quoting *Minton v. Nat ’l Ass ’n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003)) that a “whereby clause in a method claim is not given weight when it simply expresses the intended result of a process step positively recited.” *Id.*

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 4, 8, 9, 10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallmeier (US 6553033 B1) in view of Guidos (US 4725836) and in further view of Divivier (US 2003/0053470 A1).

Claim 1: Wallmeier shows a scheduler device for scheduling transmission of data from a plurality of queues in a source node to a plurality of destination nodes (e.g. LICs or to other SMUs through intermediate switch **see diagram 1 below) via a plurality of outlet ports of the source node (figs. 1 & 2), the scheduler device comprising:

a plurality of servers (e.g. SMUs), each being associated with a respective one of a plurality of resources (fig. 1: the “tunnel” between the SMUs and an intermediate “switch”) and each comprising a scheduler module (e.g. WFQ scheduler; col. 4 lines 9-13) which is independent for each of the servers (col. 3 lines 46-51),

wherein each of said outlet ports is associated with a respective one of the plurality of resources (**see diagram 1 below).

However, Wallmeier does not *expressively* show the data is transmitted from a source node to a destination node via an outlet port and *a corresponding resource*, wherein at least one of the plurality of resources is used for transmitting data to more than one of the plurality of destination nodes, and wherein at least one of the plurality of resources is used for transmitting data to *subset of the plurality of destination nodes*.

Guidos teaches the data is transmitted from a source node to a destination node via an outlet port and a corresponding resource (fig. 4: CPU, as source, wherein output port can be driver 26 or 28 corresponding to buses 22 and 24 respectively; fig. 2: buses 22 and 24, as resources, that carry data to destination terminals T-1 and T-2), wherein at least one of the

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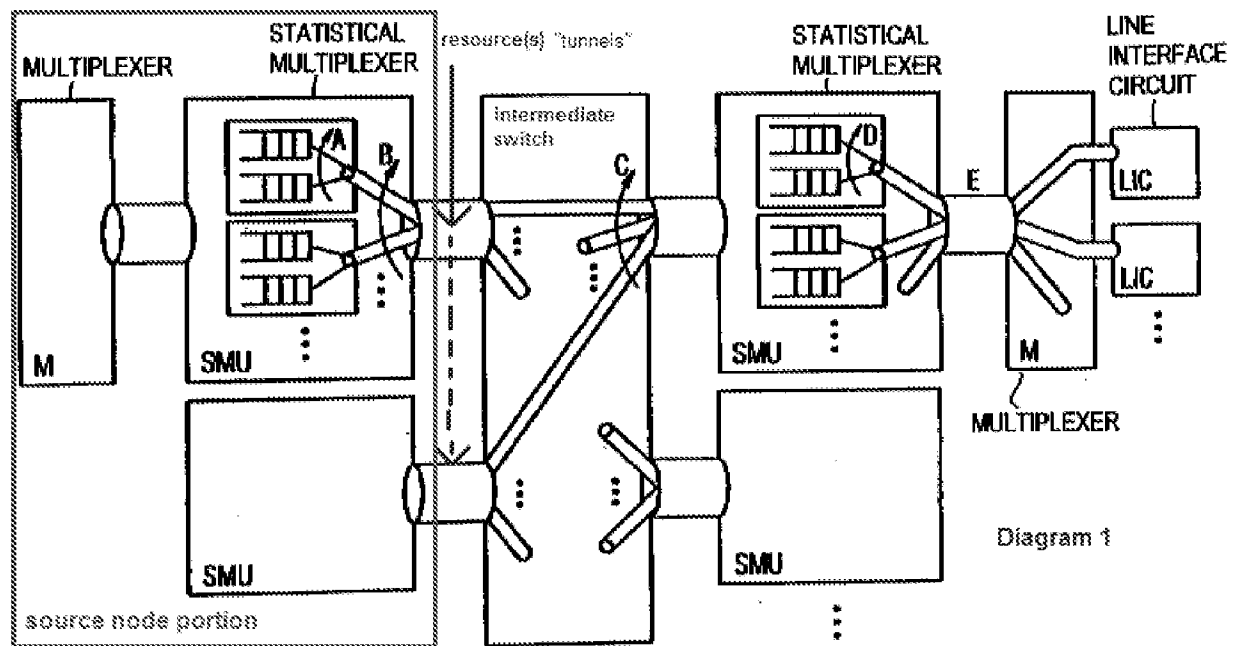
plurality of resources is used for transmitting data to more than one of the plurality of destination nodes (fig. 2: bus 22 can transmit data to T-1 and T-2 destinations), and wherein at least one of the plurality of resources is used for transmitting data to subset of the plurality of destination nodes (col. 5 lines 46-52: e.g. bus 24 carries data to subset destinations T-1 and T-2 – there can be more than T-1 and T-2 terminals as shown in col. 5 lines 35-37 wherein up to T-n terminals configuration can be implemented wherein T-n can be one of a subset of terminals not connected by all buses).

It would have been obvious to one of ordinary skill in the art at the time the invention was created to modify and upgrade the resource of Wallmeier into plurality of resources wherein each bus carries data to a subset of destination nodes as taught by Guidos to enable a plurality of terminals to access a source without complex time-division arrangements (col. 2 lines 30-31).

Wallmeier, in combination with Guidos, do not very explicitly mention “the source node further comprises a plurality of buffers which store data prior to the data being transmitted” and “each of the plurality of buffers corresponds to a respective one of the plurality of destination nodes.” Divivier teaches a node comprises a plurality of buffers which store data prior to the data being transmitted (pg. 9 right-col. line 3: plurality of virtual output queues) and each of the plurality of buffers corresponds to a respective one of the plurality of destination nodes (pg. 9 right-col. lines 3-5: each virtual output queue, VOQ, corresponding to a separate multicast cell destination). It would have been obvious to one of ordinary skill in the art when the invention was created to include the buffers to store data prior to transmission and each of the buffers corresponds to one respective

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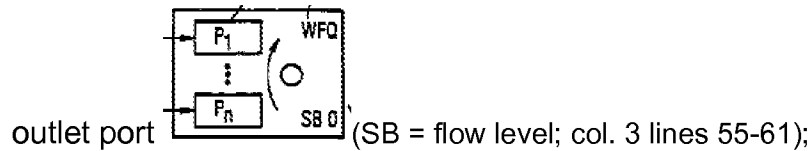
destination as taught by Divivier to the source node of Wallmeier, in combination with Guidos, to provide a way of handling multicast cells that allows it to treat each instance of a multicast cell in the same way that it treats a unicast cell, but which does not require the cell buffer to write multiple copies of a multicast cell to the cell memory (Divivier: 0009).



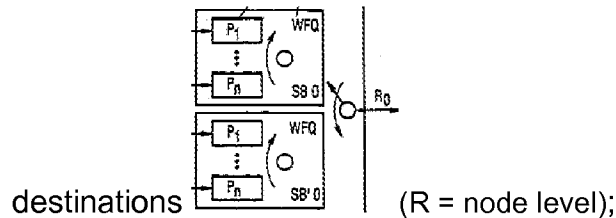
Claim 2, applied to claim 1: Wallmeier, in combination with Guidos and Divivier, further shows in figure 2 that the scheduler module comprises a plurality of stages corresponding respectively to a plurality of scheduling schemes using different criteria (col. 3 lines 31-35 & 46-52); wherein the criteria is:

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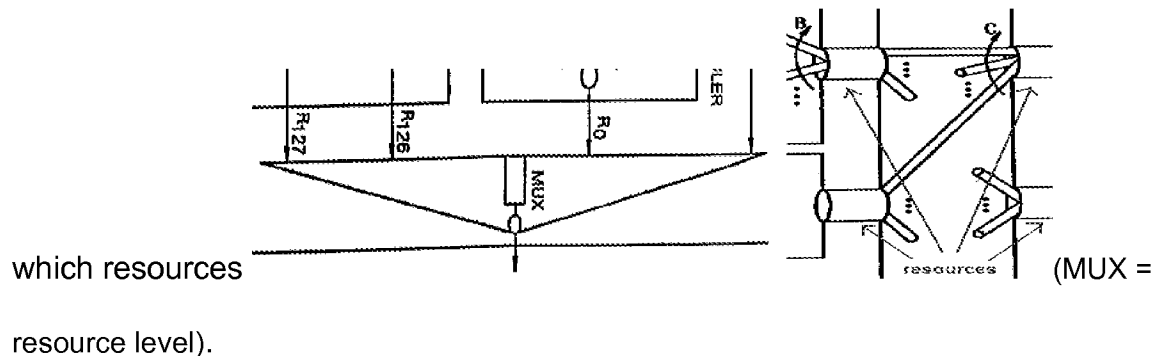
flow level scheduler scheduling between competing flows heading for the same



node level scheduling which arbitrates between loads corresponding to different



a resource level scheduler which take account of which nodes are connected to



Claim 4, applied to claim 1: Wallmeier, in combination with Guidos, further shows that the scheduling module comprises a weighted fair queuing scheduling module (col. 3 lines 29-33).

Claim 8, applied to claim 1: Wallmeier, in combination with Guidos and Divivier, further shows in figure 1 (and diagram 1) that a node comprising a scheduler device comprising a plurality of queues (in the SMUs) for sending data to a plurality of destination nodes (LICs), and a plurality of outlet ports (e.g. "tunnels").

Claim 9, applied to claim 1: Wallmeier, in combination with Guidos and Divivier, further shows the system comprising at least one source node (**see diagram 1 above: the examiner considers the boxed portion as the source node).

Claim 10, applied to claim 1: Wallmeier, in combination with Guidos, further shows each scheduler schedules data transmission on an outlet port associated with a resource that is shared with a destination node of the data (col. 3 lines 46-51; fig. 2: $R_{0...127} \rightarrow \text{MUX}$).

Claim 12, applied to claim 1: Wallmeier, in combination with Guidos and Divivier, further shows each scheduler module is independent such that each scheduler (SB) module takes into account specific features of a respective resource with which respective server (SMU) of the scheduler is associated (fig. 2; col. 4 lines 40-54).

Claim 13, applied to claim 1: Guidos further mentions the plurality of resources correspond to a transmission capacity (col. 1 lines 14-20).

Claim 14, applied to claim 13: Guidos further discloses the plurality of resources correspond to a plurality of wavelengths on an optical transmission line (col. 1 lines 14-20; col. 7 line 65 – col. 8 line 5).

Claim 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallmeier (US 6553033 B1) in view of Guidos (US 4725836) and Divivier (US 2003/0053470 A1), applied to claim 1, and in further view of Fan et al (US 6408005, Fan).

Consider claim 3, and as applied to claim 1: Wallmeier, as in combination with Guidos and Divivier, disclose the claimed invention except a cyclical round-robin scheduling means. In the same field of endeavor, Fan teaches queues are visited in a cyclic order in a round-robin scheduling scheme (col. 1 lines 37-39). It would have been obvious for a person of ordinary skills in the art at the time when the invention was made to modify the scheduling mode of Wallmeier, as in combination with Guidos and Divivier, to a cyclical round-robin scheduling mode as taught by Fan, in order to avoid processes from being denied of necessary resources.

Consider claim 5, and as applied to claim 1: Wallmeier, as in combination with Guidos and Divivier, disclose the claimed invention except *specifically* mentioning the scheduling means are dependent on a set of static and/or dynamic weights. Fan teaches static and/or dynamic scheduling methods dependent on weights (col. 8 lines 63-67, col. 9 lines 1-9). It would have been obvious for a person of ordinary skills in the art at the time when the invention was made to modify the scheduling device of Wallmeier, as in combination with Guidos and Divivier, to the scheduling means that are dependent on a set of static and/or dynamic weights as taught by Fan in order to allow flexible distribution of bandwidth.

Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallmeier (US 6553033 B1) in view of Guidos (US 4725836) and Divivier (US 2003/0053470 A1), applied to claims 1 and 6, and in further view of Biroux et al (*Quality of Service in ATM Networks: State-of-the-Art Traffic Management*, "Biroux").

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Consider claims 6 and 7, and as applied to claims 1 and 6: Wallmeier, as in combination with Guidos and Divivier, disclose the claimed invention except *specifically* showing the first and second sets of weights, in which each weight represent a relative weight of the traffic of each node; and as a percentage of resource allocated to each node – relative of the total traffic of the plurality of nodes. Biroux discloses the concept of the weighted round-robin method that calculates relative allocation (ratio) using each connection's weight (w_i), the link capacity of the system, as well as the total (all) weights $\sum W_i$ where i can be from 1 to the total (N) number of cell slots (as resources/traffic of nodes) available (pg. 100 lines 22-33, pg. 105 lines 1-14). It would have been obvious to a person of ordinary skills in the art at the time the invention was created to modify the scheduling weighing factors of Wallmeier, as in combination with Guidos and Divivier, into being dependent each weight represent a relative weight of the traffic of each node; and as a percentage of resource allocated to each node – relative of the total traffic of the plurality of nodes as taught by Biroux, in order to assign resources to each connection fairly.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallmeier (US 6553033 B1) in view of Guidos (US 4725836) and Divivier (US 2003/0053470 A1), applied to claim 1, and in further view of Bisson et al (US 2003/0059159 A1, Bisson).

Claim 11, applied to claim 1: Wallmeier, in combination with Guidos and Divivier, disclose the claimed invention yet does not very *specifically* mention the source node as

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a concentrator of a dual bus optical ring network and wherein the plurality of destination nodes are Optical Packet Add/Drop MUXes. Bisson shows in figure 1 a hub (concentrator) is as an access point to a network wherein traffic on a group of wavelengths is addressed to stations (destinations) on the ring in which each station is an optical add/drop multiplexer (OADM) station ([0016] lines 13-18). It would have been obvious to one of ordinary skill in the art at the time the invention was created to implement the scheduling functions of Wallmeier, in combination with Guidos and Divivier, to be used in the concentrator and OADMs of Bisson to allow efficient drop of portion of the traffic that is addressed to one or more of the wavelengths from the group and to add its own traffic addressed to the hub, while at the same time allowing all the wavelengths sent and received by the hub to circulate freely.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. See Divivier rejection in claim 1.

The examiner had also previously commented on claims 1, 6, 10, 12, 13, 14 and 15 as being indefinite for failing to particularly point out and distinctly claim the subject matter, e.g. the terms "*resources*" and "*resource level scheduler*," which applicant regards as the invention. While the previous 112 second paragraph is hereby *withdrawn*, applicants are reminded that although claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is **not the mode of claim interpretation to be applied during examination**. During examination, the claims must be interpreted as broadly as their terms reasonably allow.

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In re American Academy of Science Tech Center, 367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004) (The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation in light of the specification). This means that **the words of the claim must be given their plain meaning** unless the plain meaning is inconsistent with the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (discussed below); Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004) (Ordinary, **simple English words** (e.g. resources) whose meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say. Thus, “heating the resulting batter-coated dough to a temperature in the range of about 400F to 850F” required heating the dough, rather than the air inside an oven, to the specified temperature). ** In this case, “resources,” though in light of the specification stating they are “*such as wavelengths* (see abstract),” is deemed as an ambiguous “plain English word” wherein the term “resources” can be interpreted as channels (e.g. tunnels as in Wallmeier or bus in Guidos) or bandwidth or capacity, etc. since “resources,” is nothing more than “any physical or virtual entity of limited availability” and not necessary just “wavelengths.”

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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1. Golla et al, US 7023840 B2: multiserver scheduling system and method for a fast switching element

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is 571.270.1780. The examiner can normally be reached on Monday through Friday 8:30 am - 6:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571.272.3174. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800.786.9199 (IN USA OR CANADA) or 571.272.1000.

/Xavier Szewai Wong/
x.s.w
12th September 2009

/Seema S. Rao/
Supervisory Patent Examiner, Art
Unit 2416